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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/626,074 | 07/24/2003 | Joseph Samuel Incarnato | | 9770 |

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| EXAMINER | |
|---|---|
| HENEGHAN, MATTHEW E | |
| ART UNIT | PAPER NUMBER |
| 2134 | |

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/626,074 | INCARNATO ET AL. | |
| | Examiner | Art Unit | |
| | Matthew Heneghan | 2134 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. Claims 1-3 have been examined.

### *Priority*

The following is a quotation of the appropriate part of 35 U.S.C. 120:

> An application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in an application previously filed in the United States, or as provided by section 363 of this title, which is filed by an inventor or inventors named in the previously filed application shall have the same effect, as to such invention, as though filed on the date of the prior application, if filed before the patenting or abandonment of or termination of proceedings on the first application or on an application similarly entitled to the benefit of the filing date of the first application and if it contains or is amended to contain a specific reference to the earlier filed application.

The following is a quotation of the appropriate part of MPEP §711.04(a):

> Although the abandoned files are not pulled until the maximum permissible period for which an extension of time under 37 CFR 1.136(a) plus 1 month has expired, the date of the abandonment is after midnight of the date the period for reply actually expired. This is normally the end of the 3-month shortened statutory period.

2. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows: the filing date of the instant application, 24 July 2003, is after the official date of abandonment of U.S. Patent Application No. 10/054,396, to which the instant was filed as a continuation-in-part. The last period of shortened statutory period of reply for that application, based upon a final rejection that was mailed by the office on 7 April 2003, expired on 7 July 2003; the date of abandonment was therefore 8 July 2003.

Since the claim to priority under 35 U.S.C. 120 to U.S. Patent Application 09/429,087 is based upon that application's relationship to 10/054,396, the instant application also cannot claim the benefit of that application's filing date.

If Applicant desires to restore the benefit of the filing dates of the parent applications, Applicant is advised to file a Petition To Revive (See MPEP §711.03(c) Part III) including an Express Abandonment (see MPEP §710.02(e)) for Application 10/054,396. Please be advised that such a restoration would not directly lead to the withdrawal of any objection or rejection set forth in this Office Action.

***Claim Objections***

3. Claim 2 is objected to because of the following informality:

The claim lacks a transitional phrase (such as "consisting," comprising," "including," etc.). It is not clear what the limitations on the claim are, or whether those limitations would be open- or closed-ended in manner. For purposes of the prior art search, it is being presumed that the limitations encompass everything in the claim after the word "includes" in line 6, and that the limitations are open-ended. Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim encompasses only the abstract manipulation of data. The system performing the method must be tangibly embodied on a computer-readable medium.

5. Claim 1 is also rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966). Step (g) solely teaches to the use of the invention, and does not further define the method. For purposes of the prior art search, the limitation is being ignored.

***Claim Rejections - 35 USC § 112***

> The following is a quotation of the second paragraph of 35 U.S.C. 112:
>
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-3 are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

The claims are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. Note the format of the claims in the patents cited.

7. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, step (h) renders the claim indefinite because it is unclear whether the limitations are part of the claimed invention. For purposes of the prior art search, this limitation is being ignored.

Additionally, claim 1 provides for the use of the invention in step (g), but, since the limitation does not set forth a step involved in the method, it is unclear what method applicant is intending to encompass. A claim is indefinite where it contains a limitation that merely recites a use without any active, positive step delimiting how this use is actually practiced.

The term "various media" in claim 2 is a relative term which renders the claim indefinite. The term "various media" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Regarding claim 1, step (c) and claim 3, the phrase "known as a..." renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. Since the term "one-time pad" simply describes the type of invention, rather than a component of it, this phrase will be ignored in this office action.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,675,477 to Thornwall in view of Gaines, "Cryptanalysis," 1939.

Regarding claim 1, Thornwall discloses a device for automatically encrypting and decrypting characters or messages in accordance with a Vigenere matrix (see column 1, lines 17-19). Thornwall further discloses that the Vigenere square matrix consist of column and row entries and a horizontal alphabetic slide outside of the matrix (see figure 1 and column 1, lines 9-12, 32-34, and 53) such that the position in the array are consecutive number and recognized by the counter circuits (see column 4, line 66 to column 5, line 1).

Thornwall discloses that the character set consist of 26 literals, plus characters such as the space bar (see column 1, line 5) or non-literal teletype function (or control) characters, such as carry return, line feed, bell, etc. Thornwall further discloses that the size of the Vigenere matrix is dependent on the total number of different characters representative of the message characters (see column 1, lines 54-57), and thus 96 characters to implement a 96x96 matrix, having 9216 positions (cells) available numbered from 1 to 9216. Thornwall uses counter (flip-flops) which track the position of the cells and keys in the encryption process, in which the counter reader is analogous to the index point and the key value is analogous to the entry point in the Vigenere array (see column 5, lines 28-34 and column 8, lines 29-37), such that the message character is read, combined with the instant key character and the results (the encrypted character) is then outputted (see column 5, lines 28-34). The counters are reset (descending into the array) for the next encrypted character.

Thornwall does not disclose the details of the keying that is used and the randomization of the alphabets.

Gaines discloses the use of positioning an index pointer mounted on a sliding scale which descend into the Vigenere cipher matrix (see pp. 108-109) to a desired entry point, the characters (literal alphabet, numbers, and symbols) (see pp. 108-111 and 169-172, especially figure 88 of the Saint-Cry slide on p. 110). Gaines also disclose an entry point into the matrix (see p. 111, first paragraph). Gaines further discloses three different keying methods: periodic (or keyword, pp 108-109), which consists of applying the same keyword repeatedly;

autokeying (p.146), which uses the cipher itself as a key; and running keying (p. 143), which uses a non-repeating (random) alphabet. Gaines also discloses the use of multiple randomized alphabets together with the Saint-Cyr slide (see p. 143, first complete paragraph) with the aim of destroying the periodicity of the keying and thus making the cipher more secure.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to implement the system disclosed by Thornwall by using the multi-level randomized alphabet disclosed by Gaines, in order to destroy the periodicity of the keying, making the cipher more secure.

Regarding claims 2 and 3, this algorithm is implementable on a computer.

***Conclusion***

9. An examination of this application reveals that applicant is unfamiliar with patent prosecution procedure. While an inventor may prosecute the application, lack of skill in this field usually acts as a liability in affording the maximum protection for the invention disclosed. Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application, since the value of a patent is largely dependent upon skilled preparation and prosecution. The Office cannot aid in selecting an attorney or agent.

Applicant is advised of the availability of the publication "Attorneys and Agents Registered to Practice Before the U.S. Patent and Trademark Office."

This publication is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Heneghan, whose telephone number is (703) 305-7727. The examiner can normally be reached on Monday, Tuesday, Thursday, or Friday from 7:30 AM - 4:30 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Morse, can be reached on (703) 308-4789.

**Any response to this action should be mailed to:**
Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450
**Or faxed to:**
(703) 872-9306
Hand-delivered responses should be brought to Crystal Park 2, 2121 Crystal Drive, Arlington, VA 22202, Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

MEH

July 9, 2004

GREGORY MORSE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100